Flight Procedures Cover Page	Task Action: FLIGHT CHECK	Task Type: STAR	Estimated Chart Date: 12/24/2026	APWS Task ID: 41C875C5A09147C0B5C108CDE0574F5F	APWS Project ID: AE0553DD488446C2B6EBA0DD8E6860CB
Procedure: STAR SMUKE FOUR (RNAV) INDIANAPOLIS, IN KIND		Enroute: YES	Specialist: Copeland, Guy		Agreement Number:
Airport ID: KIND			Airport City: INDIANAPOLIS		State: IN
Facility ID:	Facility Type:	Flight Inspection Remark Type: New FC Slot			

Procedure Comments:
CONTACT: TARA MARTINELLI (AJV-A421) 405-954-7931

APPROVAL LETTER:
1. COMBINED DESCENT GRADIENTS AND DECELERATION DISTANCES

08/07/2026

Data as of: 07/14/2026 12:06:17 CDT

Federal Aviation Administration

Memorandum

Date:	May 14, 2026
To:	Manager, Flight Technologies and Procedures Division
THRU:	Manager, Flight Procedures and Airspace Group
From:	Jeffrey W. Chester, TCID Airspace and Procedures Manager
Prepared by:	Steven Pullen, Senior ATC Specialist, NAVTAC Support
Subject:	Letter of Approval Request SMUKE STAR, KIND

KIND SMUKE Standard Terminal Arrival Route (STAR):

SMUKE to WESLE Descent Gradient
EDIIE to COCOO Descent Gradient
CHERZ to TTKAY Deceleration Distances
CIRAM to ARIAA Deceleration Distances
COCOO to CIRAM Deceleration Distances
GAMLE to RACYR Deceleration Distances
WESLE to WAAYN Deceleration Distances
WOTSN to DUBBX Deceleration Distances

SMUKE to WESLE Descent Gradient

Currently, FAAO 8260.3G, para 2-2-8a (3), When a STAR contains a descent between fixes that passes through 10000 feet MSL, the maximum permissible DG is between 318 ft/NM and 330 ft/NM and is in proportion to the amount of the altitude change that is below/above 10000 feet MSL. Use formula 2-2-1 to determine the maximum DG (DG max) between fixes that contain a descent that passes through 10000 feet MSL.

Formula 2-2-1. Maximum DG Passing Through 10000 Feet MSL (ft/NM)

$$DGmax = \frac{(Alt_1 - 10000) \times 12}{(Alt_1 - Alt_2)} + 318$$

Where:
Alt_1 = Altitude at the fix prior to crossing 10000 feet MSL
Alt_2 = Altitude at the fix after crossing 10000 feet MSL

SMUKE has a restriction of between 11000 and 15000ft MSL and WESLE has a restriction of between 6000 and 8000ft MSL. The descent gradient (328.51 ft/nm) from SMUKE to WESLE is greater than the maximum permissible gradient allowed (320.4). Flight Standards approval is required.

EDIIE to COCOO Descent Gradient

Currently, FAAO 8260.3G, para 2-2-8a (1), the maximum permissible descent gradient 10,000ft MSL and above is 330 ft/nm (approximately 3.11 degrees). EDIIE has a restriction of at or above 11000ft MSL and COCOO has a restriction of at or above 10000ft MSL. The descent gradient (456.66 ft/nm) from EDIIE to COCOO is greater than the maximum permissible gradient allowed. Flight Standards approval is required.

The SMUKE STAR serves Indianapolis International Airport. The descent gradient of 456.66 ft/NM from EDIIE to COCOO is calculated by measuring from the top of the restriction blocks altitude of at or above 11000ft MSL at EDIIE descending to the at or above restriction altitude of 10000ft MSL at COCOO over a distance of 2.1887 NM. However, the gradient over multiple fixes is within the maximum permissible descent gradient. Descending from altitude of 11000ft MSL at SMUKE to at or above 11000ft MSL at EDIIE and at or above 10000ft MSL at COCOO, over a distance of 14.86 NM, is a gradient of 67.261 ft/NM when measured from the bottom of the restriction block at SMUKE to the bottom altitude at COCOO. The altitude restrictions at EDIIE and COCOO are for ATC operational requirements. Industry indicates that the procedure can be easily managed without increased energy management actions by the flight crew.

Leg Length Deceleration Distances

CHERZ to TTKAY Deceleration Distances

Currently, criteria evaluates loss of altitude and airspeed wholly contained within a single segment, not through the entirety of the flown procedure. FAAO 8260.3G, PARA 2-2-10 prescribes allowable deceleration distances for STAR development.

The length of the leg from CHERZ to TTKAY is 4.28 NM. This leg must be at least 5.03 NM long due to deceleration from 270.0 KIAS to 250 KIAS between 11000.0 ft. MSL to 10000.0 ft. MSL. Flight Standards approval is required.

The total distance from CHERZ to TTKAY is 4.28NM and the segment requires the aircraft to lose 1000ft of altitude and 20 KTS of airspeed. Using formula 2-2-2 of 8260.3G, based on 1000ft and 270KIAS computes a minimum deceleration distance of 5.03NM ((11000-10000)/330)+1). Industry indicates that the procedure can be easily managed without increased energy management actions by the flight crew.

CIRAM to ARIAA Deceleration Distances

Currently, criteria evaluates loss of altitude and airspeed wholly contained within a single segment, not through the entirety of the flown procedure. FAAO 8260.3G, PARA 2-2-10 prescribes allowable deceleration distances for STAR development.

The length of the leg from CIRAM to ARIAA is 5.58 NM. This leg must be at least 6.00 NM long due to deceleration from 230.0 KIAS to 210 KIAS between 7000.0 ft. MSL to 6000.0 ft. MSL. Flight Standards approval is required.

The total distance from CIRAM to ARIAA is 5.58NM and the segment requires the aircraft to lose 1000ft of altitude and 20 KTS of airspeed. Using formula 2-2-2 of 8260.3G, based on 1000ft and 230KIAS computes a minimum deceleration distance of 6.00NM ((7000-6000)/250)+2). Industry indicates that the procedure can be easily managed without increased energy management actions by the flight crew.

COCOO to CIRAM Deceleration Distances

Currently, criteria evaluates loss of altitude and airspeed wholly contained within a single segment, not through the entirety of the flown procedure. FAAO 8260.3G, PARA 2-2-10 prescribes allowable deceleration distances for STAR development.

The length of the leg from COCOO to CIRAM is 11.00 NM. This leg must be at least 11.43 NM long due to deceleration from 250.0 KIAS to 230 KIAS between 10000.0 ft. MSL to 7000.0 ft. MSL. Flight Standards approval is required.

The total distance from COCOO to CIRAM is 11.00NM and the segment requires the aircraft to lose 3000ft of altitude and 20 KTS of airspeed. Using formula 2-2-2 of 8260.3G, based on 3000ft and 250KIAS computes a minimum deceleration distance of 11.43NM ((10000-7000)/330)+1). Industry indicates that the procedure can be easily managed without increased energy management actions by the flight crew.

GAMLE to RACYR Deceleration Distances

Currently, criteria evaluates loss of altitude and airspeed wholly contained within a single segment, not through the entirety of the flown procedure. FAAO 8260.3G, PARA 2-2-10 prescribes allowable deceleration distances for STAR development.

The length of the leg from GAMLE to RACYR is 10.77 NM. This leg must be at least 12.09 NM long due to deceleration from 310.0 KIAS to 280 KIAS between 15000.0 ft. MSL to 12000.0 ft. MSL. Flight Standards approval is required.

The total distance from GAMLE to RACYR is 10.77NM and the segment requires the aircraft to lose 3000ft of altitude and 30 KTS of airspeed. Using formula 2-2-2 of 8260.3G, based on 3000ft and 310 KIAS computes a minimum deceleration distance of 12.09NM ((15000-12000)/330)+3). Industry indicates that the procedure can be easily managed without increased energy management actions by the flight crew.

WESLE to WAAYN Deceleration Distances

Currently, criteria evaluates loss of altitude and airspeed wholly contained within a single segment, not through the entirety of the flown procedure. FAAO 8260.3G, PARA 2-2-10 prescribes allowable deceleration distances for STAR development.

The length of the leg from WESLE to WAAYN is 5.97 NM. This leg must be at least 6.00 NM long due to deceleration from 230.0 KIAS to 210 KIAS between 6000.0 ft. MSL to 5000.0 ft. MSL. Flight Standards approval is required.

The total distance from WESLE to WAAYN is 5.97NM and the segment requires the aircraft to lose 1000ft of altitude and 20 KTS of airspeed. Using formula 2-2-2 of 8260.3G, based on 1000ft and 230 KIAS computes a minimum deceleration distance of 6.00NM ((6000-5000)/250)+2). Industry indicates that the procedure can be easily managed without increased energy management actions by the flight crew.

WOTSN to DUBBX Deceleration Distances

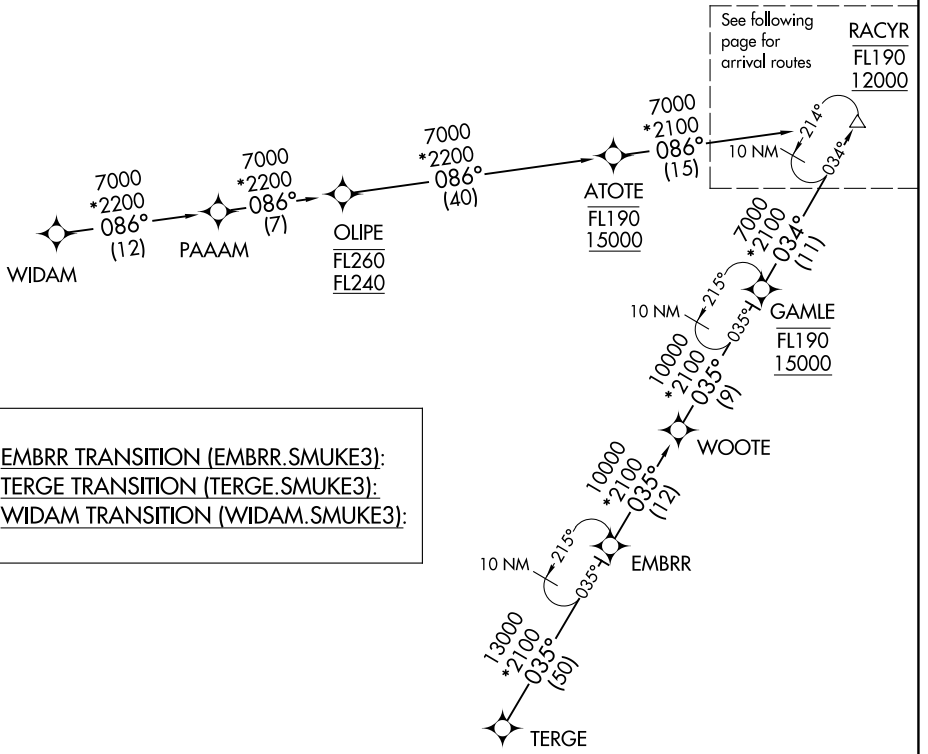
Currently, criteria evaluates loss of altitude and airspeed wholly contained within a single segment, not through the entirety of the flown procedure. FAAO 8260.3G, PARA 2-2-10 prescribes allowable deceleration distances for STAR development.
The length of the leg from WOTSN to DUBBX is 4.81 NM. This leg must be at least 5.03 NM long due to deceleration from 270.0 KIAS to 250 KIAS between 11000.0 ft. MSL to 10000.0 ft. MSL. Flight Standards approval is required.
The total distance from WOTSN to DUBXX is 4.81 NM and the segment requires the aircraft to lose 1000ft of altitude and 20 KTS of airspeed. Using formula 2-2-2 of 8260.3G, based on 1000ft and 270 KIAS computes a minimum deceleration distance of 5.03 NM ((11000-10000)/330)+1). Industry indicates that the procedure can be easily managed without increased energy management actions by the flight crew.

Therefore, ZID is requesting AFS Approval to utilize the altitudes and speeds at the following waypoints as developed for the SMUKE STAR:

SMUKE (BETWEEN 11000 AND 15000ft MSL) to WESLE (BETWEEN 6000 AND 8000ft MSL) resulting in a Descent Gradient of 328.51ft/NM.
EDIIE (AT OR ABOVE 11000ft MSL) to COCOO (AT OR ABOVE 10000ft MSL) resulting in a Descent Gradient of 456.66ft/NM.
CHERZ to TTKAY leg length of 4.28 that is required to be 5.03.
CIRAM to AXXLL leg length of 5.58 that is required to be 6.0.
COCOO to CIRAM leg length of 11.00 that is required to be 11.43.
GAMLE to RACYR leg length of 10.77 that is required to be 12.09.
WESLE to WAAYN leg length of 5.97 that is required to be 6.0.
WOTSN to DUBXX leg length of 4.81 that is required to be 5.03.

INDIANAPOLIS APP CON
128.175 317.8
D-ATIS
134.25

RNAV 1 - DME/DME/IRU or GPS.
RADAR required.



EMBRR TRANSITION (EMBRR.SMUKE3):
TERGE TRANSITION (TERGE.SMUKE3):
WIDAM TRANSITION (WIDAM.SMUKE3):

NOTE: Expect descend via clearance and landing direction assignment by Indianapolis Center. Approach will assign landing rwy.
NOTE: For non-GPS equipped aircraft landing rwy 23L; SHB DME must be operational.
NOTE: For non-GPS equipped aircraft landing rwy 23R; SHB and VHP DMEs must be operational.
NOTE: KIND Landing southwest select Rwy 23R transition. Expect runway assignment from Indianapolis APP CON prior to SMUKE.
NOTE: KIND Landing northeast select Rwy 5L transition. Expect runway assignment from Indianapolis APP CON prior to SMUKE.

NOTE: Chart not to scale.

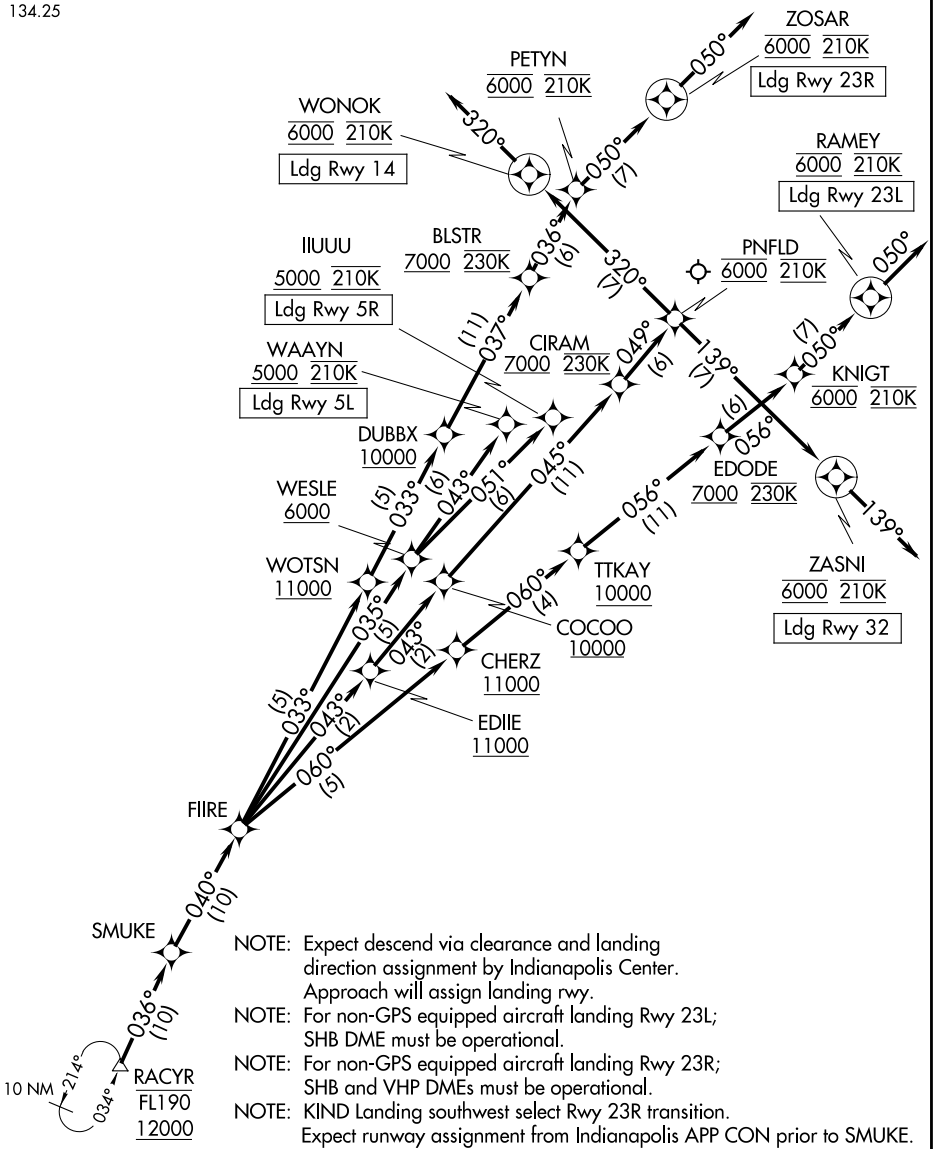
(CONTINUED ON FOLLOWING PAGE)

EC-2, 11 JUN 2026 to 09 JUL 2026
EC-2, 11 JUN 2026 to 09 JUL 2026

EC-2, 11 JUN 2026 to 09 JUL 2026

INDIANAPOLIS APP CON
128.175 317.8
D-ATIS
134.25

RNAV 1 - DME/DME/IRU or GPS.
RADAR required.



NOTE: Expect descend via clearance and landing direction assignment by Indianapolis Center. Approach will assign landing rwy.

NOTE: For non-GPS equipped aircraft landing Rwy 23L; SHB DME must be operational.

NOTE: For non-GPS equipped aircraft landing Rwy 23R; SHB and VHP DMEs must be operational.

NOTE: KIND Landing southwest select Rwy 23R transition. Expect runway assignment from Indianapolis APP CON prior to SMUKE.

NOTE: KIND Landing northeast select Rwy 5L transition. Expect runway assignment from Indianapolis APP CON prior to SMUKE.

(CONTINUED ON FOLLOWING PAGE)

NOTE: Chart not to acale.

ARRIVAL ROUTE DESCRIPTION

From RACYR on track 036° to SMUKE, then on track 040° to FIIRE.

LANDING RUNWAY 5L: From FIIRE on track 035° to cross WESLE at or above 6000, then on track 043° to cross WAAYN at or above 5000 and at 210K. Expect RNAV RNP, GPS, ILS or LOC RWY 5L or RADAR vectors to final approach course.

LANDING RUNWAY 5R: From FIIRE on track 035° to cross WESLE at or above 6000, then on track 051° to cross IIUUU at or above 5000 and at 210K. Expect RNP, GPS, ILS or LOC RWY 5R or RADAR vectors to final approach course.

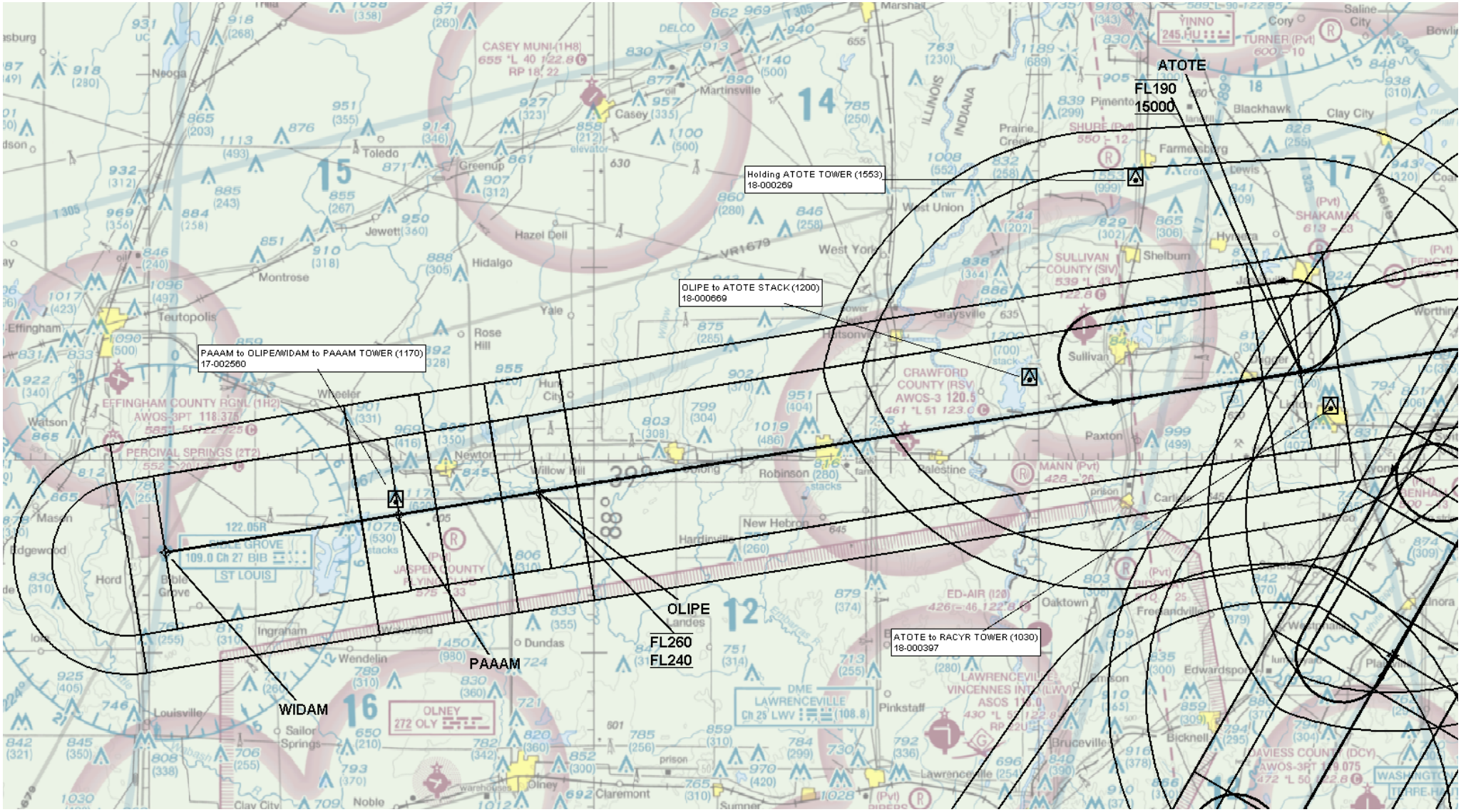
LANDING RUNWAY 14: From FIIRE on track 043° to cross EDIIE at or above 11000, then on track 043° to cross COCOO at or above 10000, then on track 045° to cross CIRAM at or above 7000 and at 230K, then on track 049° to cross PNFLD at 6000 and at 210K, then on track 320° to cross WONOK at 6000 and at 210K, then on track 320°. Expect RADAR vectors to final approach course.

LANDING RUNWAY 23L: From FIIRE on track 060° to cross CHERZ at or above 11000, then on track 060° to cross TTKAY at or above 10000, then on track 056° to cross EDODE at or above 7000 and at 230K, then on track 056° to cross KNIGT at 6000 and at 210K, then on track 050° to cross RAMEY at 6000 and at 210K, then on track 050°. Expect RADAR vectors to final approach course.

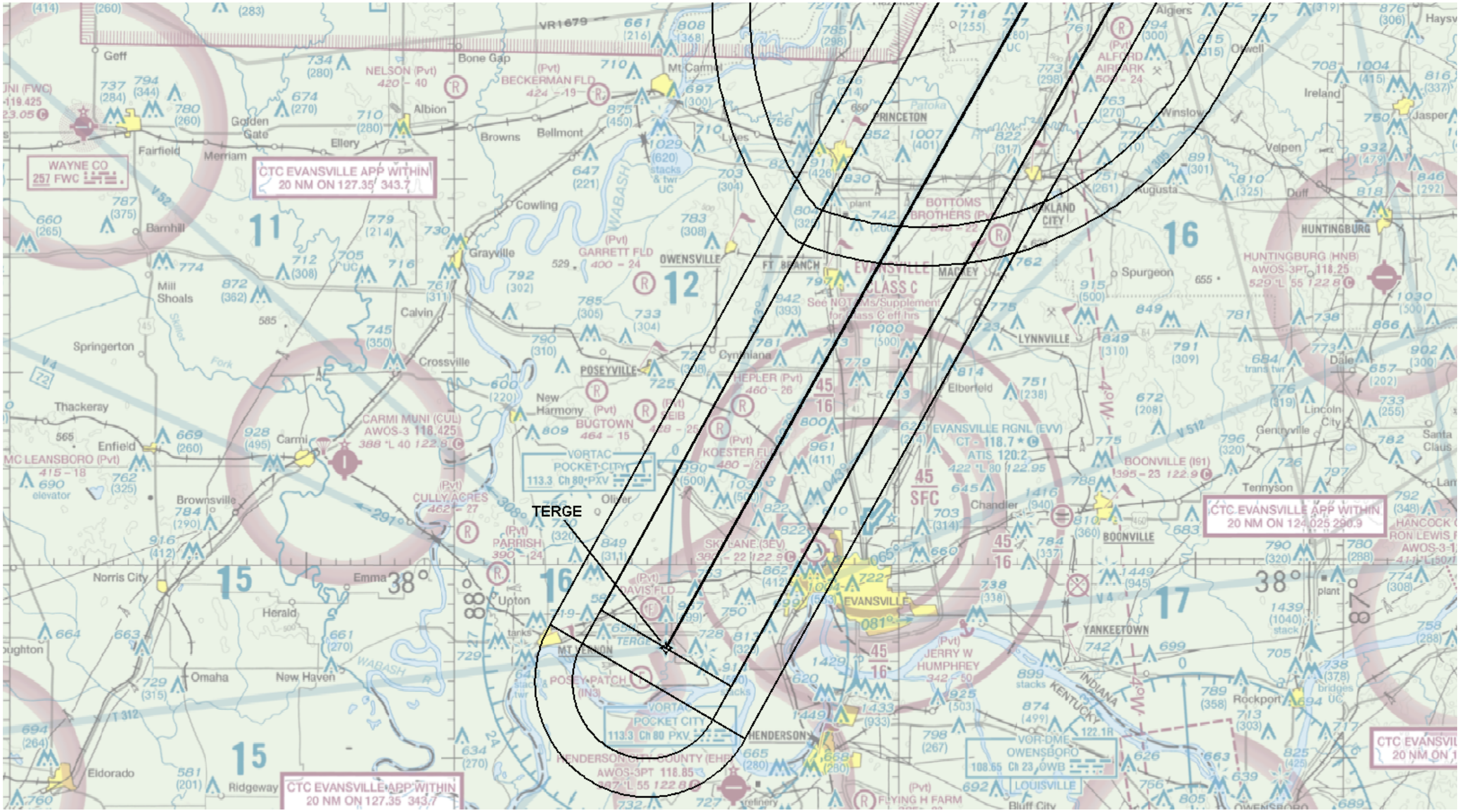
LANDING RUNWAY 23R: From FIIRE on track 033° to cross WOTSN at or above 11000, then on track 033° to cross DUBBX at or above 10000, then on track 037° to cross BLSTR at or above 7000 and at 230K, then on track 036° to cross PETYN at 6000 and at 210K, then on track 050° to cross ZOSAR at 6000 and at 210K, then on track 050°. Expect RADAR vectors to final approach course.

LANDING RUNWAY 32: From FIIRE on track 043° to cross EDIIE at or above 11000, then on track 043° to cross COCOO at or above 10000, then on track 045° to cross CIRAM at or above 7000 and at 230K, then on track 049° to cross PNFLD at 6000 and at 210K, then on track 139° to cross ZASNI at 6000 and at 210K, then on track 139°. Expect RADAR vectors to final approach course.

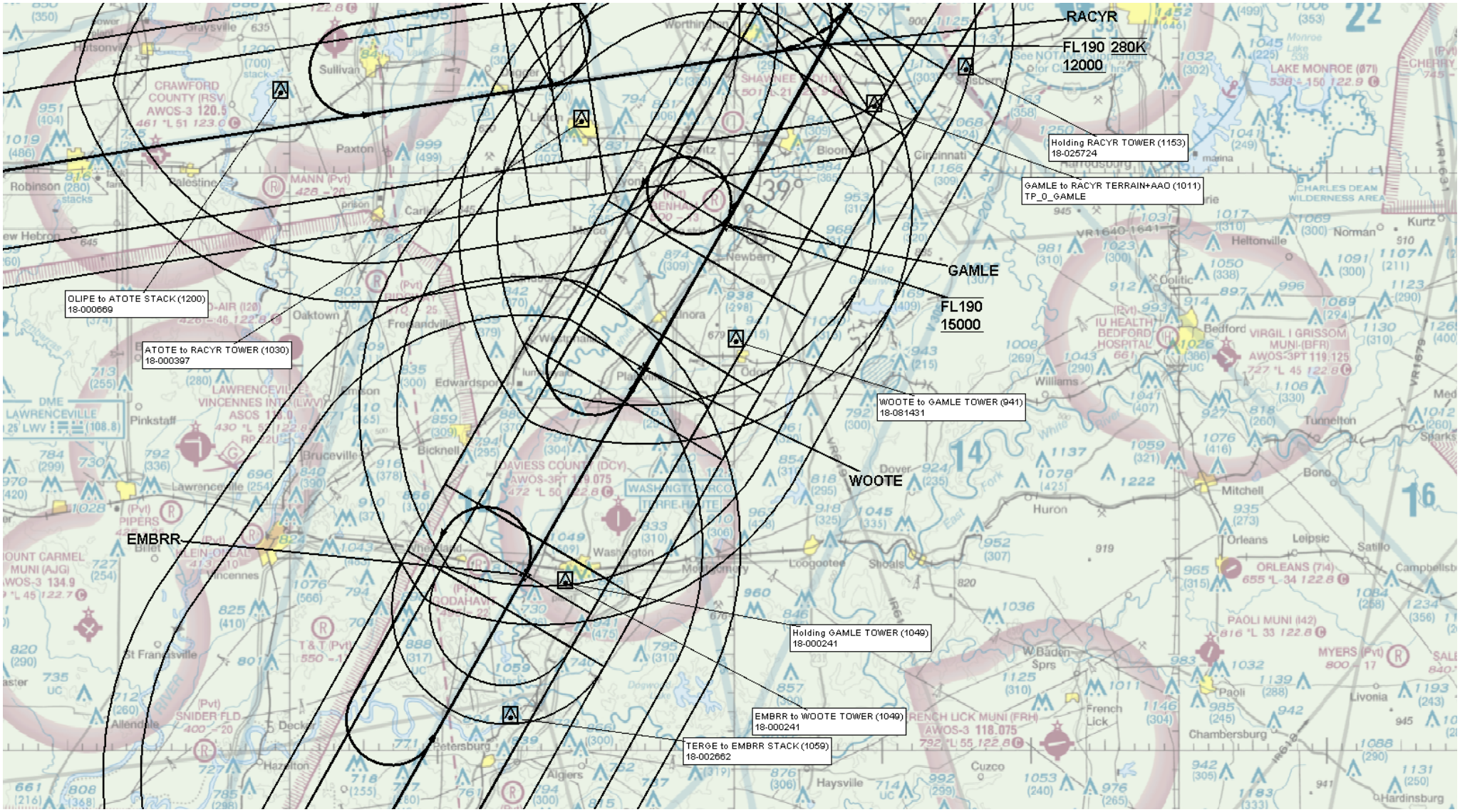
EC-2, 11 JUN 2026 to 09 JUL 2026


ATOTE
FL190
15000
Holding ATOTE TOWER (1553)
18-000269
OLIPE to ATOTE STACK (1200)
18-000669
PAAAM to OLIPE/WIDAM to PAAAM TOWER (1170)
17-002560
OLIPE
FL260
FL240
PAAAM
WIDAM
ATOTE to RACYR TOWER (1030)
18-000397

SMUKE4 (RNAV)


TERGE
CTC EVANSVILLE APP WITHIN
20 NM ON 127.35 343.7
CTC EVANSVILLE APP WITHIN
20 NM ON 124.025 290.9
EVANSVILLE RGNL (EVV)
CT - 118.7
ATIS 120.2
VORTAC
POCKET CITY
113.3 Ch 80 PXV
EVANSVILLE
CLASS C
MT VERNON
HENDERSON
BOONVILLE
PRINCETON
OWENSVILLE
POSEYVILLE
HUNTINGBURG
Carmi
Grayville
Mt Carmel
Albion
Fairfield
WAYNE CO
Eldorado
Norris City
Owensboro

SMUKE4 (RNAV)


RACYR
FL190 280K
12000
Holding RACYR TOWER (1153)
18-025724
GAMLE to RACYR TERRAIN+AAO (1011)
TP_0_GAMLE
GAMLE
FL190
15000
OLIPE to ATOTE STACK (1200)
18-000669
ATOTE to RACYR TOWER (1030)
18-000397
WOOTE to GAMLE TOWER (941)
18-081431
WOOTE
EMBRR
Holding GAMLE TOWER (1049)
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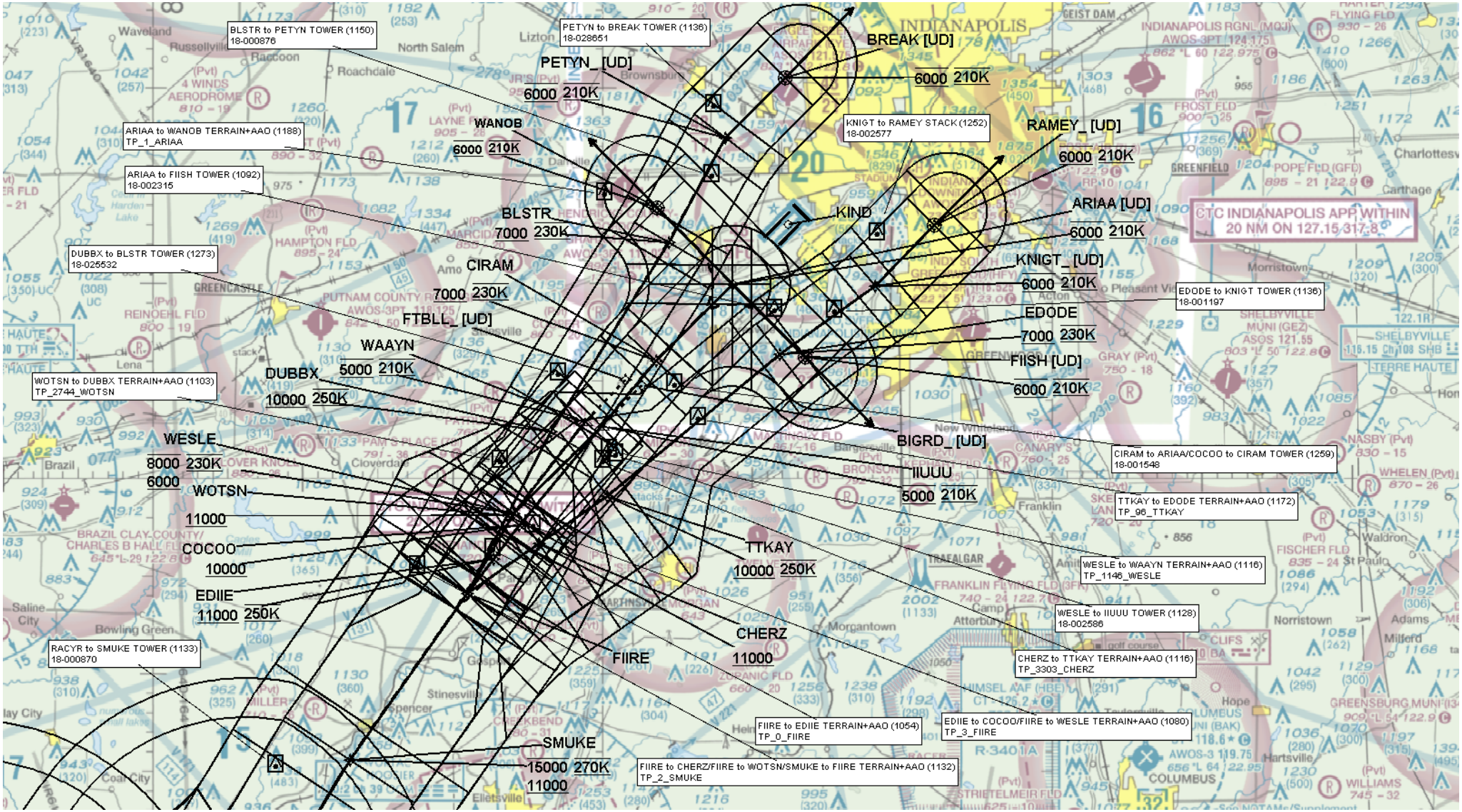
EMBRR to WOOTE TOWER (1049)
18-000241
TERGE to EMBRR STACK (1059)
18-002662


BLSTR to PETYN TOWER (1150)
18-000876
PETYN to BREAK TOWER (1136)
18-028651
PETYN_ [UD]
6000 210K
BREAK [UD]
6000 210K
KNIGT to RAMEY STACK (1252)
18-002577
RAMEY_ [UD]
6000 210K
ARIAA to WANOB TERRAIN+AAO (1188)
TP_1_ARIAA
WANOB
6000 210K
ARIAA to FIISH TOWER (1092)
18-002315
BLSTR
7000 230K
KIND
ARIAA [UD]
6000 210K
CTC INDIANAPOLIS APP WITHIN
20 NM ON 127.15 317.8
DUBBX to BLSTR TOWER (1273)
18-025532
CIRAM
7000 230K
KNIGT_ [UD]
6000 210K
EDODE to KNIGT TOWER (1136)
18-001197
FTBLL_ [UD]
EDODE
7000 230K
WAAYN
FIISH [UD]
6000 210K
DUBBX
5000 210K
10000 250K
WOTSN to DUBBX TERRAIN+AAO (1103)
TP_2744_WOTSN
BIGRD_ [UD]
WESLE
8000 230K
6000
IIUUU
5000 210K
CIRAM to ARIAA/COCOO to CIRAM TOWER (1259)
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WOTSN
11000
TTKAY to EDODE TERRAIN+AAO (1172)
TP_96_TTKAY
COCOO
10000
TTKAY
10000 250K
WESLE to WAAYN TERRAIN+AAO (1116)
TP_1146_WESLE
EDIIE
11000 250K
WESLE to IIUUU TOWER (1128)
18-002586
CHERZ
11000
RACYR to SMUKE TOWER (1133)
18-000870
FIIRE
CHERZ to TTKAY TERRAIN+AAO (1116)
TP_3303_CHERZ
FIIRE to EDIIE TERRAIN+AAO (1054)
TP_0_FIIRE
EDIIE to COCOO/FIIRE to WESLE TERRAIN+AAO (1080)
TP_3_FIIRE
SMUKE
15000 270K
11000
FIIRE to CHERZ/FIIRE to WOTSN/SMUKE to FIIRE TERRAIN+AAO (1132)
TP_2_SMUKE

SMUKE4 (RNAV)